SPECIFICATION

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SPEC. NO.: PS-50558-XXXXX-XXX **REVISION:** B

PRODUCT NAME: 0.5mm ZIF FPC CONN. SMT S/T TYPE.

PRODUCT NO: 50558，50559，50560，50561series

PREPARED:	CHECKED:	APPROVED:
XUBIN	**BRAVE**	**FRANK**
DATE: **2016/11/17**	DATE: **2016/11/17**	DATE: **2016/11/17**

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-0812016	新制 SPEC	JASON	2008/12/05
A	ECN-1401261	ADD WORKING VOLTAGE	XUFEI	2014/01/15
B	ECN-1611239	FOR APD1050105 UPDATE FPC RETENTION FORCE	XUBIN	2016/11/17

2 SCOPE

This specification covers performance, tests and quality requirements for 0.5mm ZIF FPC CONN. SMT S/T TYPE.

Aces' P/N: 50558series，50559series，50560series，50561series

3 APPLICABLE DOCUMENTS

EIA-364 **ELECTRONICS INDUSTRIES ASSOCIATION**

4 REQUIREMENTS

4.1 Design and Construction

Product shall be of design, construction and physical dimensions specified on applicable product drawing.

4.2 Materials and Finish

4.2.1 Contact: High performance copper alloy (Phosphor Bronze)
Finish: (a) Contact Area: Plating pls. See the product drawing.
(b) Under plate: Plating pls. See the product drawing.
(c) Solder area: Plating pls. See the product drawing.
4.2.2 Housing: Thermoplastic High Temp., UL94V-0
4.2.3 Nut or Ear: Copper Alloy, Plating pls. See the product drawing.

4.3 Ratings

4.3.1 Working voltage less than 36 volts (per pin)
4.3.2 Voltage: 50 Volts AC (per pin)
4.3.3 Current: 0.5 Amperes (per pin)
4.3.4 Operating Temperature : -20℃ to +85℃

5 Performance

5.1. Test Requirements and Procedures Summary

Item	Requirement	Standard
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Item	**Requirement**	**Standard**
Low-signal Level Contact Resistance	50 m Ω Max.(initial)per contact 20 m Ω Max. Change allowed	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	500 M Ω Min.	Unmated connectors, apply 500 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	250 VAC Min. at sea level for 1 minute. No discharge, flashover or breakdown. Current leakage: 1 mA max.	Test between adjacent contacts of unmated connectors. (EIA-364-20)
Temperature rise	30℃ Max. Change allowed	Mate connector: measure the temperature rise at rated current after:0.5 A/Power contact. The temperature rise above ambient shall not exceed 30℃ The ambient condition is still air at 25℃ (EIA-364-70 METHOD 2)

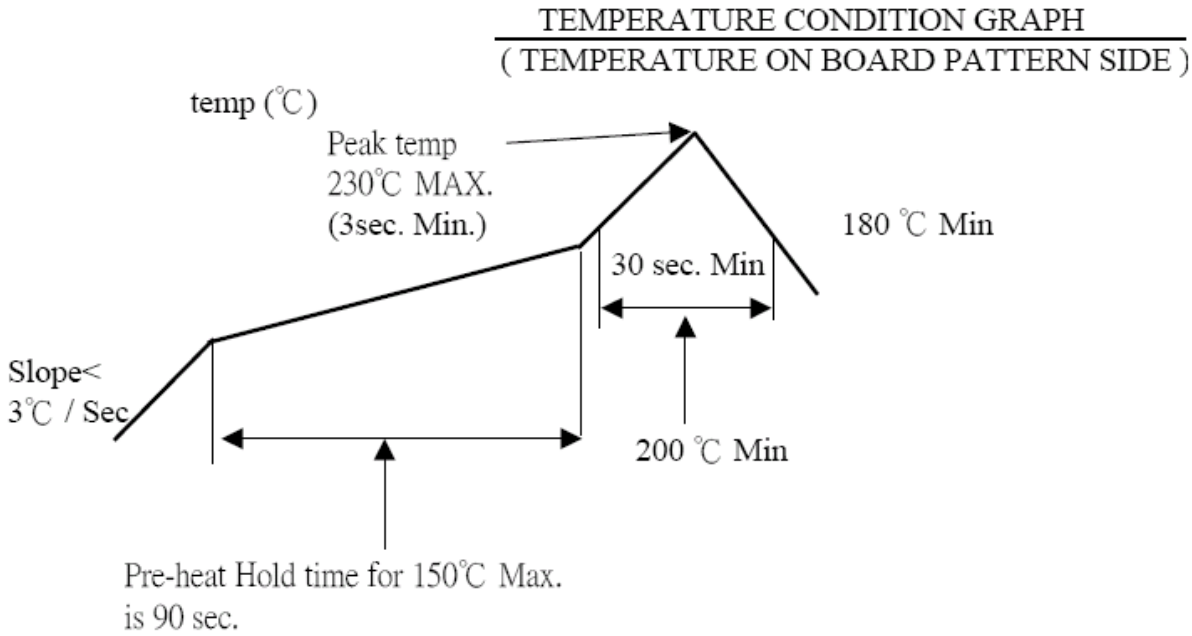
MECHANICAL		
Item	**Requirement**	**Standard**
Durability	30 cycles.	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of 25.4 ± 3mm/min. (EIA-364-09)
FPC Retention Force	Refer to 8. FPC retention force	Insert the actuator, pull the FPC at the speed rate of 25.4 ± 3 mm/min.
Actuator Insertion / Separation Force	Refer to 9. Actuator insertion/separation force	A connector shall be soldered on a board and inserted and separation at speed of 25± 3 mm/min for 30 cycles.
Terminal / Housing Retention Force	0.15kgf MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the terminal assembled in the housing.
Fitting Nail /Housing Retention Force	0.10kgf MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the fitting nail assembled in the housing.
Vibration	1 μs Max.	The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency between the limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, shall be traversed in approximately 1 minute. This motion shall be applied for 2 hours in each of three mutually perpendicular directions. (EIA-364-28 Condition I)
Shock (Mechanical)	1 μs Max.	Subject mated connectors to 50 G's (peak value) half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks). The electrical load condition shall be 100mA maximum for all contacts. (EIA-364-27, test condition A)
ENVIRONMENTAL		
Item	**Requirement**	**Standard**

Resistance to **Reflow** Soldering Heat	See Product Qualification and Test Sequence Group 10	Pre Heat：150℃Max, 90sec Min. Heat：200℃ Min., 30sec Min. Peak Temp.：230℃Max, 10sec
Resistance to **Reflow** Soldering Heat	See Product Qualification and Test Sequence Group 10 **(Lead Free)**	Pre Heat：150℃~180℃, 60~90sec. Heat：230℃ Min., 40sec Min. Peak Temp.：260℃Max, 10sec Max.
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 5 cycles. 1 cycles: -20 +0/-3 ℃, 30 minutes +85 +3/-0 ℃, 30 minutes (EIA-364-32, test condition A)
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40℃, 90~95% RH, Reefer to Method II. (EIA-364-31, Test condition A)
Temperature life	See Product Qualification and Test Sequence Group 5	Subject mated connectors to temperature life at 85℃ for 96 hours. Measure Signal. (EIA-364-17, Test condition A)
Salt Spray	See Product Qualification and Test Sequence Group 6	Subject mated/unmated connectors to 5% salt-solution concentration, 35℃ for 8 hours. (EIA-364-26,Test condition B)
Solder ability	Solder able area shall have minimum of 95% solder coverage.	Subject the test area of contacts into the flux for 5-10 sec. And then into solder bath, Temperature at 245 ±5℃, for 4-5 sec. (EIA-364-52)

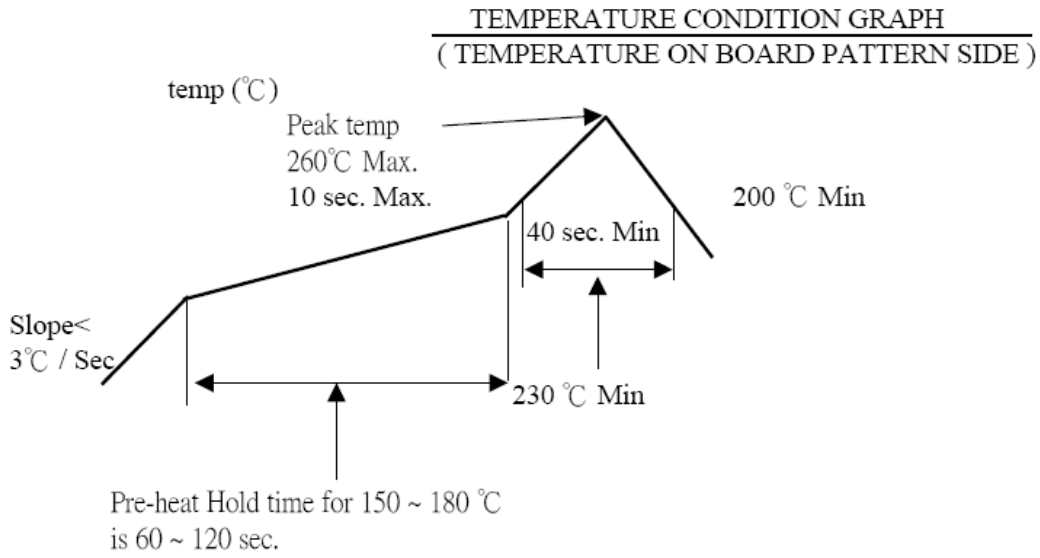
Note. Flowing Mixed Gas shell be conduct by customer request.

6 INFRARED REFLOW CONDITION

6.1. General Process



6.2. Lead-free Process



7 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	11
	Test Sequence										
Examination of Product				1、7	1、6	1、4				1	
Low-signal Level Contact Resistance		1、5	1、4	2、10	2、9	2、5				3	
Insulation Resistance				3、9	3、8						
Dielectric Withstanding Voltage				4、8	4、7						
Temperature rise	1										
Mating / Unmating Forces		2、4									
Durability		3									
Vibration(Random) / Vibration			2								
Shock (Mechanical)			3								
Thermal Shock				5							
Humidity				6							
Temperature life					5						
Salt Spray						3					
Solder ability							1				
FPC Retention Force								1			
Actuator Insertion / Separation Force											1
Terminal / Housing Retention Force									1		
Fitting Nail /Housing Retention Force									2		
Resistance to Soldering Heat										2	
Sample Size	2	4	4	4	4	4	2	4	4	4	4

8 FPC RETENTION FORCE

NO. OF Ckt.	Withdrawal Force (Min)	NO. OF Ckt.	Withdrawal Force (Min)
4	0.20Kgf	1.30Kgf	1.00Kgf
5		36	
6	0.30Kgf	37	
7		38	
8		39	
9		40	
10		41	
11		42	
12		43	
13		44	
14		45	1.40Kgf
15		46	
16		47	
17		48	
18		49	
19	0.50Kgf	50	
20		51	
21		52	
22		53	
23		54	
24		55	1.60Kgf
25	0.75Kgf	56	
26		57	
27		58	
28		59	
29		60	
30		61	
31		62	
32		63	
33		64	
34		65	

9 ACTUATOR INSERTION/SEPARATION FORCE

NO. OF Ckt.	Insertion Force (Max)	Separation Force (Min)	NO. OF Ckt.	Insertion Force (Max)	Separation Force (Min)
4	2.20Kgf	0.25Kgf	35	5.50Kgf	0.90Kgf
5			36		
6			37		
7			38		
8			39		
9			40		
10			41		
11			42		
12			43		
13			44		
14			45	6.00Kgf	1.30Kgf
15			46		
16			47		
17			48		
18			49		
19	3.00Kgf	0.40Kgf	50		
20			51		
21			52		
22			53		
23			54		
24			55	8.00Kgf	1.50Kgf
25	4.20Kgf	0.70Kgf	56		
26			57		
27			58		
28			59		
29			60		
30			61		
31			62		
32			63		
33			64		
34			65		